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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/314,034	05/18/1999	MARK F. SCHULZ	54565USA4A	4599

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SCOTT A BARDELL  
OFFICE OF INTELLECTUAL PROPERTY COUNSEL  
3M INNOVATIVE PROPERTIES COMPANY  
P O BOX 33427  
ST PAUL, MN 551333427

EXAMINER

GRENDZYNSKI, MICHAEL E

ART UNIT

PAPER NUMBER

1774

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Please find below and/or attached an Office communication concerning this application or proceeding.

MF-15

<b>Office Action Summary</b>	<b>Applicati n N .</b> 09/314,034	<b>Applicant(s)</b> SCHULZ ET AL.	
	<b>Examiner</b> Michael E. Grendzynski	<b>Art Unit</b> 1774	

-- The MAILING DATE of this communication appears on the cover sheet with the corresp ndence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 12-22 and 24-32 is/are pending in the application.
- 4a) Of the above claim(s) 12-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 22 and 24-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_      6) ☐ Other: \_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 22 and 28-32 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a fluid management system comprising a surfactant, does not reasonably provide enablement for a fluid management system generally (i.e., not comprising a surfactant). The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. The specification, on p 3, defines fluid management system as a composition comprising at least one surfactant. No other formulations are taught or suggested.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 28 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Currently, both claims depend from claim 23, which has been canceled. It has been assumed that applicants intended the claim to depend from claim 22.

### *Claim Rejections - 35 USC § 103*

5. Claims 22, 25, 28, 29 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Varnell (WO 99/06219 in view of Nagasaki (US 6326075)). Applicants claim an ink receiving medium comprising (1) a nonwoven macroporous substrate and (2) a fluid management system (i.e., a surfactant) and a pigment management system (which may be combined in one layers or exist as two separate

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layers). The substrate comprises fibers selected from the group consisting of cotton, flax, hemp, ramie, burlap, wool, silk, rayon, acrylic, polyolefin, polystyrene (and specific block copolymers thereof), and combinations of these. The fluid management system comprises a polyvalent metal salt, wherein the cation is selected from the group consisting of Ca, Mg, Ti, Cr, Fe, Cu, Zn, Ta, Al, Ga, Sn, and combinations thereof. Varnell discloses an inkjet printing medium comprising a substrate and a surface treating composition. *See* Abstract. The surface treating composition comprises a divalent metal salt (e.g., calcium chloride), which is equivalent to applicants' polyvalent metal salt—it comprises, e.g., calcium chloride. *See* p 9, ll 13-17. The surface treating composition further comprises an opacifying pigment. *See* p 17, l 28. The substrate, moreover, is equivalent to applicants' nonwoven web. It comprises polymeric plastic fibers. *See* p 20, ll 6-7. Rayon, acrylic, polyolefin, and polystyrene are all known polymeric fibers used in forming nonwoven supports for ink-receptive articles. *See, e.g.,* Nagasaki at col. 4, ll 23-58.

With specific regard to claim 32, Varnell, while not specifically disclosing aluminum sulfate, clearly contemplates aluminum sulfate, since it is a polyvalent metal salt possessing chemical properties similar to those salts disclosed by Varnell, namely, calcium chloride, aluminum chloride and barium sulfate.

6. Claims 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (US 6096418) in view of Shaw-Klein (US 6110601) and the Tyvek® product bulletin. Sato discloses a sheet for ink jet recording comprising a substrate with an ink-receiving layer thereon. *See* Abstract. The ink-receiving layer is equivalent to applicants' ink-receiving layer. It comprises a multivalent metal salt having a cation selected from, e.g., calcium. *See* col. 4, ll 7-15. This is equivalent to applicant's pigment management system. Though not specifically disclosing the use of a surfactant, a surfactant is a well known additive used in ink-receptive layers, for they improve the coating properties of the layer. Consequently, it would be obvious to one of ordinary skill in the art at the time of the invention to use a

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surfactant in the Sat ink-receiving layer. *See e.g., Shaw-Klein col. 4, l 60 through col. 5, l 13* (disclosing that surfactants are a known additives in ink receptive layers). Sato further discloses that the substrate comprises a synthetic paper. It does not limit the type of synthetic paper which may be used as the substrate, but it does not disclose a preferred synthetic paper. Tyvek® is known synthetic paper use as a support in ink-receiving layer which comprises spunbonded polyethylene fibers. *See Tyvek® Product Bulletin*. It would have been obvious to use the Tyvek synthetic paper as the substrate in the Sato ink-receiving medium, motivated by the desire of providing an “incredibly durable printing surface” as taught by the Tyvek® Product Bulletin.

7. Claims 22, 24-27, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over of either Wallace (4889765) or the Tyvek® Product Bulletin in view of Stokes (EP 842786). Both Wallace and the Tyvek® Product Bulletin disclose that spunbonded polyolefin substrates (e.g., Tyvek®) are not inherently receptive to aqueous ink jet inks. *See col. 1, ll 5-30 and Product Bulletin, respectively*. Wallace additionally discloses that images placed on such materials are not necessarily rub resistant. *See col. 1, ll 17-23*. Both Wallace and the Tyvek® Product Bulletin, moreover, disclose that it is necessary to coat these substrates with an ink-receptive coating. *See col. 1, ll 5-30 and Product Bulletin, respectively*. Stokes discloses a print enhancement coating comprising a polyvalent metal salt and a surfactant. *See p 3, ll 37-40 and ll 51-55*. Stokes does not limit the type of material that may be used, teaching that its enhancement coating may be applied to any known supports—including nonwoven substrates. *See p 4, ll 7-9*. Stokes teaches that its print enhancement coating reduces ink jet bleeding. *See p3, ll 1-5*. It would have been obvious to one of ordinary skill in the art at the time of the invention to place the print enhancement coating of Stokes on the Tyvek® nonwoven web, motivated by the desire of providing an ink-receptive coating that resists ink bleeding, as taught by Stokes on p 3, ll 1-5.

With specific regard to claim 25, since Tyvek® is identical to the supports used by applicants in the invention, it is the examiner's position that this support possesses the claimed porosity value. In

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addition, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. Porosity of a support layer is a conventional concern in the art, for it controls the amount of ink that is absorbed into the layer. A prima facie case of obviousness may be rebutted where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney*, 205 USPQ 215. To date, this burden has not been sustained.

With regard to claims 26-27 and 30, *see* p 3, ll 51-55 (disclosing anionic, cationic, hydrocarbon, and silicone-based surfactants).

With regard to claims 29 and 32, Stokes discloses the use of a calcium chloride and aluminum sulfate (aluminum sulfate hexadecahydrate). *See* p 6, ll 15-20.

8. Claims 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Wallace or the Tyvek Product Bulletin in view of Stokes, as applied to claims 22-27, 29 and 32, above, and further in view of Hasegawa (US 4954395). Hasegawa teaches that sodium dioctyl sulfosuccinate is a known nonionic surfactant used in ink-receptive layers. *See* col. 8, l 33 through col. 9, 3 and Example 4. As such, its use as the nonionic surfactant in the Stokes print enhancement coating would be obvious to one of ordinary skill in the art.

9. Claims 22, 24-29 and 32 are rejected under 35 USC 103(a) as being unpatentable over Kovacs (US 6206517) in view of Shaw-Klein. Kovacs discloses an ink jet printing medium comprising a substrate and an image-recording layer thereon. *See* Abstract. The substrate is equivalent to applicants' macroporous substrate—it comprises Tyvek®. *See* col. 6, l 66 through col. 7, l 7. The image-recording layer comprises a nonionic, hydrocarbon or fluorocarbon surfactants and a matting agent comprising titanium dioxide (which is equivalent to applicants' opacifying agent). *See* col. 6, ll 28-33. Kovacs does not limit the additives which may be placed in its image-recording layer. *See* col. 6, ll 26-40. Shaw-Klein discloses that a multivalent metal salt such as calcium chloride may be added to an ink-receiving

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layer to enhance the color rendition of dyes placed thereon. *See* col. 4, ll 28-35. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a multivalent metal salt in the Kovacs image-recording layer, motivated by the desire of improving the color rendition of dyes placed thereon, as taught by Shaw-Klein on col. 4, ll 28-35.

With specific regard to claim 25, since Tyvek® is identical to the supports used by applicants in the invention, it is the examiner's position that this support possesses the claimed porosity value. IN addition, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. Porosity of a support layer is a conventional concern in the art, for it controls the amount of ink that is absorbed into the layer. A prima facie case of obviousness may be rebutted where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney*, 205 USPQ 215. To date, this burden has not been sustained.

With specific regard to claim 32, Shaw-Klein, while not specifically disclosing aluminum sulfate, clearly contemplates aluminum sulfate, since it is a polyvalent metal salt possessing chemical properties similar to those salts disclosed by Shaw Klein, namely, calcium chloride, aluminum chloride and barium sulfate.

10. Claims 22, 24-26, 28, 29, and 32 are rejected under 35 USC 103(a) as being unpatentable over Wallace (US 4889765) in view of Shaw-Klein (US 6110601). Wallace discloses ink-receptive coatings which are placed on spunbonded polyolefin sheets such as Tyvek®. *See* Abstract and col. 5, ll 35-39. Tyvek® is identical to the macroporous substrate used by applicants. The coating comprises an anionic surfactant (i.e., applicants' claimed fluid management system) and an opacifying pigment (e.g., titanium dioxide). *See* col. 4, ll 5-30 and 55-66. Wallace discloses that the coating may comprise other modifiers as necessary. *See* col. 4, ll 34-36. Shaw-Klein discloses that a multivalent metal salt such as calcium chloride may be added to an ink-receiving layer to enhance the color rendition of dyes placed thereon.

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See col. 4, ll 28-35. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a multivalent metal salt in the Kovacs image-recording layer, motivated by the desire of improving the color rendition of dyes placed thereon, as taught by Shaw-Klein on col. 4, ll 28-35.

With specific regard to claim 25, since Tyvek® is identical to the supports used by applicants in the invention, it is the examiner's position that this support possesses the claimed porosity value. IN addition, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. Porosity of a support layer is a conventional concern in the art, for it controls the amount of ink that is absorbed into the layer. A prima facie case of obviousness may be rebutted where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney*, 205 USPQ 215. To date, this burden has not been sustained.

With specific regard to claim 32, Shaw-Klein, while not specifically disclosing aluminum sulfate, clearly contemplates aluminum sulfate, since it is a polyvalent metal salt possessing chemical properties similar to those salts disclosed by Shaw Klein, namely, calcium chloride, aluminum chloride and barium sulfate.

11. Claims 30 and 31 are rejected under 35 USC 103(a) as being unpatentable over Kovacs (US 6206517) in view of Shaw-Klein, as applied to claims 22, 24-29 and 32, in further view of Hasegawa (US 4954395). Hasegawa teaches that sodium dioctyl sulfosuccinate is a known nonionic surfactant used in ink-receptive layers. See col. 8, l 33 through col. 9, 3 and Example 4. As such, its use as the nonionic surfactant in the Kovacs image-recording layer would be obvious to one of ordinary skill in the art.



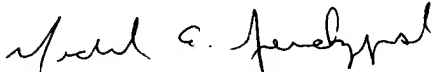
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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael E. Grendzynski whose telephone number is 703-305-0593. The examiner can normally be reached on weekdays, from 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 703-308-0449. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-5408 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2351.



Michael E. Grendzynski  
Assistant Examiner  
April 5, 2002



BRUCE H. HESS  
PRIMARY EXAMINER